

Undergraduate Student Anxiety-Management in Academia:
Appraising the Value of Services and Strategies

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Abstract

This study explored strategies that Brock University undergraduate students value the most for managing anxiety in academia. Although previous literature indicates services and techniques such as academic advising, physical activity, and educator engagement help students, few if any have ranked students' perceived value of anxiety-management strategies. The researcher recruited 54 undergraduate student participants (primarily from the Department of Community Health Sciences) through online invitation. Participants completed an online survey to rate their previous experience with anxiety-management strategies discussed in the literature. Survey findings identified the 4 most valuable resources students used to manage anxiety in academia: (a) educators who post academic material posted online (e.g., on Sakai) early in the term, (b) physical activity, (c) socialization, and (d) breaking large assignments into smaller portions. Conversely, student participants found disability services, counseling, and medication to be the least valuable resources. Results suggest higher-education facilities should ensure that the most valuable services are readily available to students seeking them. The study contributes to the field by identifying a broad set of strategies that students find highly valuable in their management of academic related anxiety.

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CHAPTER ONE: INTRODUCTION TO THE STUDY

This study explores students' experience and values associated with various techniques and services suggested in the literature to be effective in helping students manage the anxiety that often accompanies undergraduate studies.

Approximately 4.7% of college dropouts in the United States were attributed to mental health issues in 1995 (Kessler, Chio, Demler, & Walters, 1995). Rates since then have only been higher as evidenced by increasing demands on mental health care units, mental health resources, and outgoing psychiatric drug prescriptions (Mojtabai & Olson, 2011; Travis, 2011). Among other mental health issues, cases of anxiety have been affecting students in higher education at an increasing rate based on reports from campus officials (Mowbray et al., 2006). Anxiety disorders, which affect more than 18% of the general population aged 18 and over, are characterized by an extreme fear or uneasiness towards specific situations, people, or objects (Daitch, 2011; Kessler et al., 1995; Zahn-Waxler, Klimes-Dougan, & Slattery, 2000). Given the pressure to do well in higher education and a fluctuating economy that may put stress on career aspirations, it is no surprise that anxiety issues may be more prevalent in higher education. One study reported that 47.1% of a sample consisting of 1,617 university students reported anxiety of at least moderate severity while in school (Bayram & Bilgel, 2008).

Anxiety can affect many areas of an individual's life. Education and social interactions in particular may be susceptible. Existing literature has demonstrated that higher levels of anxiety are correlated with weaker academic achievement (Karagozoglu, Masten, & Baloglu, 2005). Stevenson (2010) suggests that students with anxiety issues may have difficulty seeking academic/professional help, understanding criticism and

constructively using it, maintaining scheduled attendance, and interacting with peers. These difficulties can also act as barriers to the individual seeking mental health assistance.

A variety of sources in the literature discuss techniques, services, and strategies that are effectively used for the management of anxiety. Some of these include prescription therapy, social support groups, physical exercise, professional therapy (such as cognitive behavioral therapy), anxiety-friendly teaching strategies (e.g., differentiated teaching and emotional tolerance), and professional counseling (Burgess et al., 2009; Daitch, 2011; Davis, Eshelman, & McKay, 2008; Martinsen, 2008; Karagozoglu et al., 2005; Kessler, Foster, Saunders, & Stand, 1995; Mills, Reiss, & Dombeck, 2008; Power & Tarsia, 2007; Stevenson, 2010; Travis, 2011). For simplicity, the strategies and services found in the literature explored in this project can be broken down in three categories. The first comprises services offered here at Brock University available to students, such as counseling and academic advising. The second category includes strategies used by students to manage their anxiety, such as physical activity and social support groups. The third category groups strategies used by educators who aim to minimize anxiety experienced by their students, such as organizational techniques and stimulating activities. A questionnaire was used to determine which strategies students find to be most valuable at managing academic related anxiety.

In the literature, student disability services are considered an asset to higher education students in need, although there is scant literature available to demonstrate their effectiveness in overall anxiety management (Rath & Royer, 2002). The same is true for requesting that educators inform students about mental health resources available

to them at the given institution. Sources suggest that doing so may help manage the mental health crisis seen in many colleges and universities today (Mowbray et al., 2006). This project was designed to measure directly the perceived value of such strategies and services by asking the student body about its experience with the strategies, alongside strategies that students use themselves to manage anxiety. Doing so will provide data that can be analyzed comparatively against each other.

Students in higher education who do not have valuable anxiety management strategies and institutional services to fall back on in times of need, will be more inclined to suffer academically and will have an increased risk of developing chronic anxiety issues (Karagozoglu et al., 2005). Techniques and strategies employed by educators, such as curriculum modification and class activities, have also been shown to help students with academic-related anxiety by addressing learning preferences and by engaging students with their work (Stevenson, 2010).

Although many health resources are available to students struggling with anxiety, the role of negative stigma towards mental illness may make students very hesitant to seek professional help in fear of embarrassment. Surveys in the United Kingdom show that approximately 80% of people endorse the belief that the general public is embarrassed by mental illness, with 30% admitting that they are embarrassed by mental illness themselves (Byrne, 2000). As a result, students may be less likely to seek public mental health resources for fear of being judged. Therefore, a simplified version of the main findings of this project will be available freely to students online, eliminating the need for them to physically retrieve the work from the Brock University library.

This project analyzed the value of strategies and techniques that students and educators use to manage anxiety experienced by students in higher education, incorporating the role of mental health services as well. As a side project, or supplement to the project, the results were published in an informal e-magazine, free to view by the public. The e-magazine discussed the results and implications of the project in a student-friendly medium. Additionally, the e-magazine was created on a social media blog-style website to ensure ease of access. Consequently, students are able to quickly and easily explore how their peers at Brock University deal with anxiety and what seems to be most valuable to them. The e-magazine also serves as a list of ideas for anxiety management for students, which will all be supported by literature. Tumblr—primarily a picture blogging website—was an effective platform for creating an interactive e-magazine, as it allows viewers to highlight portions of the website that they find particularly interesting (Murphy, 2008).

Results from this study may provide answers to some questions frequently posed by undergraduates dealing with troublesome levels of anxiety. Such questions may include: “How do the other students deal with academic anxiety?”; “I would be less stressed if only my professor would make some accommodation for different learning styles. Do they know it would help some of us?”; and “What mental health services are available to me at Brock?”

The project also discusses strategies for university educators who may not have experience with mental health issues. When everyone is better educated about the management and effects of anxiety issues, the collective understanding may promote students’ academic achievement and well-being.

Background of the Problem

As mental health becomes a growing concern in higher education, it has never been more important to research trends in how students cope with such concerns. Internalized mental health issues can involve a great deal of shame and guilt (Travis, 2011). Open discussion of these issues, like publishing the results and discussion of this project online for students to freely view on their own time, may serve to directly combat these factors by creating a more open and accepting environment around anxiety concerns. Similarly, due to stigma attached to mental illness, individuals with anxiety may be anxious to seek out help and/or unaware of where to go for help (Byrne, 2000). By providing information to students about where they can go, brief overviews of the types of services available for managing anxiety disorders, and strategies other students find most valuable, students may be more likely to seek out help. Lastly, from the educator's point of view, complications that arise from anxiety disorders may be mistaken for academic weakness and noncompliance. By providing strategies for educators to assist these students, along with ratings of how valuable students find each individual strategy, this problem may be slightly alleviated. Playing a pivotal role in education, educators hold a lot of potential, whether through teaching styles or personality traits, in helping students deal with the stress and anxiety that can accompany higher education (Stevenson, 2010).

Problem Context

Anxiety issues are an increasing problem in higher education institutions such as universities and colleges (Travis, 2011). This is a problem since elevated anxiety levels

can be detrimental to memory and learning, which are important to university or college-level work (Stevenson, 2010).

Additionally, within the literature, there is very little information on a comparative analysis between such an range of anxiety management strategies. A small number of the studies have discussed the effectiveness of one tool (e.g., aerobic activity) based on results from a standardized anxiety or depression rating scale but none have compared many strategies and/or techniques, or worked within a higher education context (Martinsen, 2008). Many individual strategies have proven to be beneficial to students struggling with anxiety, although no comparative studies have been done to see if any individual strategies are superior to others (Daitch, 2011). Compared to the existing studies, this project has taken a more holistic approach, looking to objectively find a cluster of the most valuable strategies, based on students' experience, amongst a list of positive strategies. Finally, there is a lack of Canadian studies concerning anxiety management in higher education. Although this was a community-based project, it may be one of the few studies approached from a Canadian context.

Purpose of the Study

Despite the available literature that discusses anxiety and stress management for students, some questions still remain. Do students find some strategies and services more or less valuable than others? Do students in higher education prefer to take stress and anxiety management into their own hands now that they are adults? Through a quantitative comparative analysis, this project has attempted to answer such questions.

This study explored students' experience and the value they associated with various techniques and services suggested in the literature to be effective in helping

students manage the anxiety that often accompanies undergraduate studies. Unlike some resources that deal with anxiety management, which may simply provide a list of techniques that may be valuable for an individual, this project intended to provide a comparative analysis of students' opinions towards strategies and services that the literature suggests are most effective.

This project has also provided an opportunity for students, as a whole, to explore what their lecturers and professors have been doing to help them manage student anxiety levels. Although the usage frequency of each service and strategy has been measured, this variable was not identified as a determinant of value.

Research Questions

In order to determine students' and educators' practices with regard to addressing anxiety issues, the following questions guided the research:

1. Are students able to identify the ways in which they manage their personal anxiety levels?
2. How exactly can educators accommodate and assist students with academic-related anxiety? Do students find these accommodations helpful?
3. Are students using the mental health services available at Brock University? How do they compare, in terms of student value, against educator- and student-based strategies?

Rationale

Many examples of institutional services, student strategies, and educator strategies have demonstrated effectiveness in the management of anxiety within the

literature. However, no single strategy has demonstrated superiority over others. This project has aimed to address this gap in the literature.

Kessler et al. (1995) draws attention to the increasing incidence of mental health problems seen at college and university campuses in the United States and what happen if no preventative action is taken. On the positive side, Mowbray et al. (2006) have stressed that well-educated students and a variety of institutional services are vital in creating and maintaining a healthy mental health atmosphere on campus. Additionally, Daitch (2011) shares a gentle reminder that students can battle their anxiety right from home at little to no cost and in a short amount of time. Finally, Souma, Rickerson, and Burgstahlet (2001) and Stevenson (2010) highlight the role that educators can play in helping to manage student's anxiety. On a side note, Byrne (2000) reminds us that when dealing with the sensitive issue of mental health, we need to keep in mind the stigma attached to it.

For the student body, the project was intended to give them new ideas on how to manage their anxiety based on what other students have found valuable. For educators, the project will provide a chance for the students as a whole to give feedback to the professors concerning how they are helping with the anxiety management. Finally, it may give the educators new ideas on how to help any of their students who are experiencing anxiety.

Theoretical Framework

The literature discussed up to this point suggests that a variety of strategies and services can be effective in helping students in higher education deal with anxiety (Daitch, 2011). However, the literature is not clear on whether one strategy or service is more valuable than another. This project has attempted to explore this idea on a

community level in a university setting. Now that the potential areas of stress and anxiety management have been reviewed, it is important to discuss the groups of factors effecting student anxiety levels and what role each plays. Institutional services such as academic advising and counseling make professional care available but lack the ease of access compared to the other strategies, often taking some time with appointments and referrals to get into the right office with the appropriate professional. Most student strategies (e.g., physical activity and hobbies) can be utilized immediately by students without having to go through another person or group but can require some experimentation with different activities to determine preferences and what strategies work best for each individual (Daitch, 2011). Educator techniques can tackle stress and anxiety in the environment where much of it may originate but may require student–teacher disclosure if students have individual needs or preferences (Stevenson, 2010). However, all three areas have the potential to impact students' anxiety management.

Scope and Limitations of the Study

Internal validity (maturation, statistical regression, and experimental mortality) was not an issue for this project since the questionnaire was administered at one point in time and the researcher did not have any personal contact with the participants.

With reference to external validity, the convenience sampling may have weakened the study. However, most forms of testing bias were avoided. Testing bias was avoided in this design since the questionnaire was given only once at the time of data collection. The same is true for researcher bias since the researcher did not spend any significant amount of time with any individuals within the study. Compliance on the

questionnaire was also an issue since the researcher was not able to provide incentives to those completing the questionnaire completely.

The study's scope was entirely within Brock University and was not specifically targeting students in higher education elsewhere. However, this is not to say that the information may be useful to students outside of Brock in terms of the relaxation techniques and educator strategies. The limitations of the study include the level of honesty that participants put into answering the questionnaire. In an attempt to control this variable, the researcher designed the questionnaires to be anonymous.

When looking at the validity of the conclusions, this may be considered a pilot study that could lead into further research. The sample size of 54 undergraduate students was relatively small and may not represent the views of the "average student" at Brock University. The small sample size was primarily attributed to difficulty in attaining student email addresses due to privacy concerns within the university and to the minimal compensation for participating in the online survey. Although this project was aimed towards students dealing with considerable levels of anxiety, the questionnaire was developed so that students with low to moderate levels of anxiety could provide valuable data to address the research questions. Additionally, since the participants were self-selected to complete the survey, there may be a negative effect on generalizability (Creswell, 2010). In other words, the study population may have represented students who were more willing to disclose how they feel about a sensitive subject, which may also have varying patterns of anxiety management as well. To limit the effects of any trends that may have existed across years of study and disciplines, the study's intention was to provide handouts to students in different academic years and disciplines. For

example, the sample was to include 40 second-year students in the arts, 40 third-year students in the sciences, and 40 fourth-year students in education. Due to the difficulty of obtaining student emails, participants ended up being mostly from the Department of Community Health sciences as the researcher had personal connections with some educators there.

Outline of the Remainder of the Document

Chapter 2 presents the review of literature that explores how anxiety affects students in higher education and ways in which they try to deal with it. These include activities students do themselves, strategies the educators employ to help students, and services available at Brock University for students struggling with anxiety. There is also discussion concerning the barriers that anxiety disorders put on students who are trying to reach their academic potential. Finally, the chapter explores the role of stigma within society on anxiety disorders and how this relates to the goals of the project.

Chapter 3 presents the study's methodology and discusses the project's various statistical tests and analyses. Chapter 4 discusses the research findings and presents a copy of a short website that I created based on the study's findings. Finally, chapter 5 presents the results of the study and the implications they may have on students at Brock University. The chapter also summarizes the project in its entirety.

CHAPTER TWO: REVIEW OF THE LITERATURE

Existing literature offers some idea of the severity of the mental health crisis in higher education facilities. Stevenson (2010) suggests that students at universities in Western cultures experience mental disorders, ranging from anxiety to depression, at rates as high as one in six. An Australian study reported that three quarters of adults in the study experiencing a mental disorder, such as anxiety and depression, were between the ages 17 and 25, a time when individuals typically enroll in university (Stevenson, 2010). Individuals with anxiety disorders also report, on average, increased levels of anger and fear and decreased levels of happiness (Power & Tarsia, 2007). This is of importance since students in higher education may be expected to show a great deal of self-discipline (e.g., starting and completing assignments) and positive social activity (e.g., participation in seminars, presentations, and group work) to be academically successful. This further stresses the importance of determining the most valuable ways to manage anxiety that may accompany higher education.

In response to the increasing reports of anxiety issues seen in higher education, it is no surprise that mental health services are attempting to be more proactive towards the crisis (Mowbray et al., 2006). In addition to institutional mental health services, many students also attempt to manage their academic anxiety themselves with personal strategies, such as exercise and social activity. Finally, the literature suggests that educators can also play a role in helping their students manage anxiety levels in the classroom.

This project addresses the following three potential types of academic anxiety management strategies and services directed at students because prior literature has suggested that they are effective:

1. Services offered by the institution (Brock University in this case), which offer many professional opportunities to deal directly with the management of stress and anxiety. Additionally, opportunities for social networking are usually available through educational institutions.
2. Strategies used by students, which offer a more personal opportunity for students to take their concerns into their own hands.
3. Strategies used by educators to help the students, which offer an opportunity to ensure that the environment of interest has a minimal contribution to academic-related anxiety. Educators may be capable of helping students with academic-related anxiety rather than contributing to it. The strategies discussed in this section will explore this idea further.

Prominent examples within each category (e.g., counseling as an institutional service) have been explored for student value in previous literature. Each example will be reviewed individually based on findings from prior literature.

Institutional Services at Brock University

Brock University provides free mental health services to all students. The question is whether or not the students who would benefit from them are seeking the resources. A study in Australia by Burgess et al. (2009) reported that 11.9% of the general population made use of the mental health services available to the community. Only 34.9% of this group reported a diagnosed mental disorder, indicating that individuals with undiagnosed disorders or general mental health concerns, such as stressed-out students, may make considerable use of mental health services. Burgess et al. also mentioned that young adults represented the group most likely to use the services,

indicating that the target population may be particularly apt to make use of mental health resources.

The following sections discuss some of the mental health services available to students at Brock University.

Counseling

Brock offers counseling services to students dealing with mental health issues (L. McCurdy-Myers, personal communication, March 2, 2011). Les McCurdy-Myers also shared that [upon appointment] a student can see a professional counselor (with a minimum of 10 years of experience in mental health) within 3 to 4 business days. Finally, McCurdy-Myers discussed the fact that the counselors work very closely with the student development center and student health services, and keeps regular contact with them (Personal communication, March 2, 2011). The counseling department also accommodates emergency situations, often able to fit students in crisis in a counseling session the day of occurrence. Student health services also offer onsite physicians to serve the students of Brock University.

For students looking for social or emotional support that may be wary of seeking professional help, support groups may prove to be a valuable tool in anxiety management.

Support Groups

There are a variety of positive health associations that are adjunct with Brock University.¹ Some of these groups directly promote positive mental health (e.g., Active

¹ A list of these can be found through the Brock University website's home page and at <http://www.brocku.ca/slic/the-people/inno-pod-members>

Minds at Brock), some are academic groups (e.g., CHSC department council), while others are simply hobby groups (e.g., Brock Cycling, and United Gamers at Brock). Despite the groups' missions, these are opportunities for students to engage in social contact with colleagues, possibly offering an outlet for academic anxiety.

Brock (2011) also publishes a magazine titled *Student Health 101* which is also available free and online to students. This magazine covers a broad range of health issues, even several mental health topics such as loneliness and social problems. Most importantly, it is developed by the students themselves. However, this serves more as a general literature review of health topics and case studies with individual students. There is a need for a forum that provides the results of a simple quantitative analysis and anxiety management strategies based on students' opinion and feedback, rather than a holistic discussion of individual mental health topics.

However, many concerns besides those that are emotional and physical (which may be managed by counselors and/or physicians) exist in the university setting that can contribute to stress and anxiety levels. This is where we see the need for academic advising services.

Academic Advising

According to the mission statement of Brock University's (2010b) Academic Advising and Exploration Services, Office of the Registrar, the team strives to help students make decisions concerning their academic life and lists a variety of services to assist students with "their transition to university life, to take responsibility for their learning and goal setting, to implement strategies for achieving their goals, to graduate in a timely manner, successfully meeting all requirements" (para. 2). These types of services

can be very helpful to students experiencing academic anxiety in university. For example, given the different types of assignments and exams in university, a student not well prepared for this type of rapid transition from high school may experience a high degree of academic anxiety. Along with a new environment and having to function independently as an adult, learning and goal setting in university also requires much more self-discipline than high school, which could also be a source of academic anxiety for newly transitioned university students (Parker, Hogan, Eastabrook, Oke, & Wood, 2006). Academic advising can be a valuable resource for managing some cases of academic anxiety.

Mild to moderate cases of academic-related anxiety may be managed by counseling, support groups, and academic advising. However, for the more severe cases, the student disabilities services may be a more valuable service.

Student Disability Accommodations

At Brock University, students with documented disabilities such as anxiety disorders can work with the student development center to have other students within the university take notes for them at the lectures that they are unable to attend.² This is very important to minimize anxiety experienced in those students who wish to learn but have trouble doing so in a social environment. It is possible that the growing trend of PowerPoint lectures being provided online has been beneficial for these students, making course lectures and assignments more accessible than ever. Brock also offers an array of on-site physicians whom students at the university are able to see free of charge. Here at Brock University, the professionals working at counseling work closely with the Student

² This service can be further explored at <http://edit.brocku.ca/services-students-disabilities>

Development Center (SDC) and Services for Students With DisABILITIES (SSWD), and vice versa, to ensure that students quickly reach the appropriate service for them. For larger institutions, it is understandable how this could be quite a problem. According to Mowbray et al. (2006), students are actively using the disability resources available at colleges and universities but more often end up going through many offices and personnel before reaching the appropriate type of service that will help them.

A resource such as an e-magazine would provide students with an opportunity to share with each other their experiences with their university's mental health related services. Students would also be able to gauge how valuable their colleagues found individual services compared to others. Such information might help point students looking for help in the right direction.

As one can see, there are many opportunities for students to seek professional help for their concerns. However, when seeking institutional services, students are required to disclose their feelings and concerns, which many may be uncomfortable doing due to attached stigma. Therefore, some students may choose to find their own ways of dealing with anxiety that do not involve their educational institution.

Student Strategies

Many types of therapy, such as Cognitive Behavioral Therapy (CBT), Rational Emotive Therapy (RET), and customized programs (such as EQUIP) are used to help individuals with anxiety disorders (DiBiase, Gibbs, Potter, & Spring, 2005; Daitch, 2011). However, these treatments require a lot of self-disclosure, professional time, and money. This draws into the importance of personal coping techniques that individuals can use without spending a great deal of money and time. Prominent examples found in the

literature include physical exercise, socialization, medical intervention, and various types of personal interest activities and relaxation training (Daitch, 2011). The strategies listed have all been demonstrated to be effective anxiolytics in the literature (Meyer & Quenzer, 2005; Mills et al., 2008). We start with a behaviour that is emphasized starting in grade school: socializing with others, whether they be colleagues, friends, or family.

Socialization

As mentioned earlier, support groups and social behaviour can be beneficial in the management of academic anxiety (Mills et al., 2008). Literature demonstrates that socialization, or enjoying the company of others, works effectively to decrease feelings of loneliness and increase feelings of safety, security, and belonging. Socialization also has a positive effect on ‘feel good’ hormones such as oxytocin (Mills et al., 2008).

This draws into the importance of the behavioural activation model for some mental health conditions, such as depression and anxiety (Dimidjian et al., 2006). With a focus on the relationship between mood and activity, the model describes how struggling individuals often work in patterns of avoidance and withdrawal. Avoidance can reduce distress in the short term, but over the long term the individual can become increasingly isolated from any potential social activity that may work to counteract the problem (Martinsen, 2008). Over time, this can lead to decreased physical fitness, which can increase one’s likelihood for experiencing medical issues (Martinsen, Strand, Paulsson, & Kagestad, 1989). This leads into the next factor that can act to reduce anxiety levels in struggling students—physical activity.

Physical Activity

Based on five meta-analyses, it was concluded that both chronic and acute periods

of exercise resulted in significant lower depression levels as measured by standardized depression rating scales (Etnier et al., 1997). Surprisingly, the antidepressant and anxiolytic effects of exercise begin as quickly as immediately following exercise and can persist for weeks afterward. Also worth noting, the effects of exercise and pharmacotherapy on anxiety and depression can be synergistic which suggests that they can work exclusively to reduce symptoms.

In relation to learning, physical activity (aerobic exercise in particular) increased levels of brain derived neurotrophic factor (BDNF) in vitro, which is a compound found in the brain heavily associated with learning processes (Meyer & Quenzer, 2005). If exercise minimizes the likelihood of learning impairment, this may explain some of the positive effects seen on learning with the addition of exercise. For students who do not enjoy physical activity and enjoy spending time by alone, hobbies and personal interests may be of greater value in the management of anxiety.

Hobbies, Personal Interests, and Relaxation Training

Besides those already discussed, the literature suggests a couple other activities in which individuals use for the management of anxiety. These include music, video games, and relaxation exercises. In a study done in a hospital setting, video games were found to be as effective as midazolam (a common anxiolytic agent) in reducing anxiety levels (Kato, 2010). Video games can be a positive alternative since they are easy to access, very affordable, and require little effort to use. Similarly to video games, music is of value to many people as a safe relief strategy from anxiety. Kemper and Danhauer (2005) hypothesize that music acts as a distractor from negative stimuli (e.g., exam pressure or fitting in) and occupies the mind with something positive and familiar to the individual.

Additionally, based on a meta-analysis of 42 randomized controlled trials in a hospital setting, music was found to be a considerable tool in reducing patient anxiety in 21 of the studies (Nilsson, 2008). Finally, for those individuals who wish to master the art of relaxation, specific training may offer the most benefit in anxiety management. Based on a meta-analysis of 27 studies, various types of relaxation training (progressive, autogenics, meditation, and applied relaxation) were shown to have significant efficacy in reducing anxiety levels (Manzoni, Pagnini, Castelnovo, & Molinari, 2008).

For those students with more severe cases of anxiety or for those who have exhausted many of the techniques already discussed without much success, medication prescribed by a doctor may be an additional option.

Medical Intervention

Several pharmaceuticals have demonstrated significant efficacy in the management of all types of anxiety (Meyer & Quenzer, 2005). Some examples are antidepressants, such as fluoxetine and paroxetine, and benzodiazepines, such as clonazepam and diazepam (Meyer & Quenzer, 2005). Additionally, many new anxiolytic drugs hit the market each year that have more and more favourable drug effects and fewer side-effects (Meyer & Quenzer, 2005).

Additionally, persistent cases of anxiety and depression have been shown to reduce the size of the hippocampus, which is heavily involved in learning, through overstimulation (Meyer & Quenzer, 2005). Treatment with antidepressants for a 6-month period has demonstrated a regeneration of the neurons within the hippocampus. Medical intervention offers the possibility of effectively correcting underlying biological issues with brain physiology and genetic issues that may be difficult to deal with otherwise

(Meyer & Quenzer, 2005). However, medical intervention often neglects to manage the social aspects of mental health issues (e.g., anxiety) which is why medication are often given along with other recommendations of life style changes, such as physical exercise and socialization (Meyer & Quenzer, 2005).

While institutional services and student strategies address anxiety issues, faculty members also have the potential to play a role. Educators spend a great deal of time in the same environment where the stress and anxiety originates for many students. At the centre of it all, educators have a variety of opportunities to help students manage their stress and anxiety even at a higher education level.

Educator Strategies

The literature indicates that anxiety has a negative effect on working memory, mental organization, and the ability to store and retrieve ideas (Stevenson, 2010). However, despite these difficulties, educators still have opportunities to be of assistance. Stevenson (2010) effectively describes such opportunities:

For those lecturers, tutors, and academic language and learning advisers who are able to work with students one-to one, it is not difficult to recognise when anxiety and/or depression are major blocks to a student's work. Excessive fatigue, sadness, irritation, feelings of failure and worthlessness, and/or guilt at being unable to manage an assignment may prevent a student from starting or completing an assignment. Alterations in cognition such as an insistent focus on details, slowed responses and difficulty in logical sequencing may inhibit their work or they may seem completely "frozen" with regard to their work.

Facilitating the learning of students with anxiety and depression is concerned with

creating a framework within which the student is sufficiently freed from internal and external impediments to be able to continue their work. (p. 43)

The literature also discusses preventative strategies that educators in higher education can employ, such as working with students on organizing their workload, pushing students to explore their preferred learning styles, and ensuring that students are aware of the resources that their facility offers. Whether it be allowing preferred seating or providing academic materials earlier in the term, educators can potentially play a major role in limiting anxiety experienced by their students.

Dynamic Activities and Differentiation

A growing trend, termed “differentiated instruction,” may be a positive factor in reducing anxiety experienced by students (Roe, 2010). Differentiated instruction is described as accommodating students’ various learning needs and learning styles (Roe, 2010). For example, some students may prefer to work alone to minimize stress from outside distractions. If the educator is aware of such learning needs, a simple differentiated placement may substantially help students with needs such as these. According to Gardner (1999), everyone has varying degrees of intelligence in different areas and has preferred learning styles based on their dominant intelligences. Other theorists, such as Mihaly Csikszentmihalyi (1997) support the idea that higher levels of stimulation and attention to individual strengths make students less likely to feel anxious and more likely to feel involved in their work. It is important to note these are both theories developed for students in the K-12 years but may be generalized to higher education students in the same way. Research is needed to explore if such a relationship

exists for university students as well. This project may represent a stepping stone in such research.

Research suggests that classroom activities are very valuable in addressing differentiated needs in learning, due to their dynamic social components (Roe, 2010). Within the context of mental health, this is important since students with anxiety issues have different learning needs than those without them. Simple accommodations can be made by making minimal modifications to existing curriculum. The following examples are based on Gardner's theory of multiple intelligences, which suggests that each individual has dominant intelligences that they prefer to use when they work (Gardner, 1993). Each type of intelligence is also related to a preferred style of learning. For example, a verbal-linguistic learner may learn most effectively by exchanging dialogue and reading words on paper. A spatial learner may learn most effectively from working with colours or pictures. A bodily kinesthetic learner may learn most effectively from moving around and working with objects. For some subject matter, these factors may be difficult to include in the curriculum.

Although these types of activities may typically be emphasized in K-12 education, Stevenson (2010) claims that they can be immensely effective for higher education students as well. When students are forced to work outside of their preferred learning style(s) or use their weaker intelligences, they can feel discomfort (Gardner, 1993). If differentiated teaching is capable of helping students experiencing stress due to unaddressed learning needs, then it can only work towards alleviating the mental health crisis present in many colleges and universities (Bayram & Bilgel, 2008; Collins & Mowbray, 2005; Kadison & DiGeronimo, 2005; Mowbray et al., 2006; Ozen et al., 2010;

Rath & Rogers, 2002). Through differentiated instruction, an educator may provide more personalized work for such a student to help manage possible anxiety issues.

While organizational strategies may be clustered under differentiated teaching, they can be especially helpful to students dealing with high levels of stress and anxiety. As a result, they have been discussed individually.

Organizational Strategies

As previously mentioned, literature has demonstrated that anxiety has a negative effect on working memory, mental organization, and the ability to store and retrieve ideas (Stevenson, 2010). These deficits are often amplified on tasks that require strong cognitive ability such as beginning a new assignment. With this in mind, educators may find it beneficial to break down a large project into smaller segments (e.g., helping students create a short proposal prior to a large paper) to help minimize the anxiety that some students experience with these types of tasks (Stevenson, 2010). Alternatively, educators may create smaller, more plentiful assignments to reduce the likelihood of the student getting overwhelmed (Souma et al., 2001). Even if only a small portion of the classroom deals with these issues, employing such tactics would not cause harm to any of the other students. It is likely that all students experience some level of anxiety when starting new assignments.

Additionally, Stevenson (2010) explains that students in higher education struggling with anxiety often have problems with procrastination, due to adverse feelings (e.g., guilt and shame), and frequently become “frozen” with their assignments. Due to this, educators may help by being open to providing occasional extensions to students who may need it due to the anxiety related issues (Souma et al., 2001; Stevenson, 2010).

However, such extensions should only be given after communication with the students to ensure that their work goals have been re-organized so that they feel self-sufficient.

Souma et al. (2001) also suggest that struggling students may benefit from alternate formats for examinations in some cases as well (e.g., essay, short answer, or multiple choice). Alongside organizational strategies, unblocking strategies in which the student is prompted to write a couple sentences about a topic without their notes may also be particularly valuable in helping students get jump started on large assignments (Stevenson, 2010).

Aside from helping students directly, educators can also assist students indirectly in accessing the institutional services as previously discussed by ensuring that they are informed about what is available to them.

Educating Students on Available Services

This strategy comes into light when we look at large university classes with hundreds of students, where it can be difficult to accommodate the individual learning needs of every student. For such circumstances, it is vital for lecturers to inform students about the variety of mental health services available at the institution. Additionally, providing this information through online learning software would ensure that students have easy access to this information throughout the whole semester.

As Mowbray et al. (2006) suggest, the more informed students are about the services available to them, the more likely they are to go to the most appropriate location for their issue(s), where their needs can be most effectively met. That being said, this may be considered more of an efficiency variable to the mental health service system. As previously mentioned, students may be hesitant to seek professional help in fear of

embarrassment due to the negative stigma attached to mental illness (Byrne, 2000).

Putting research results and discussion into an easily accessible format may have helped to alleviate some of the difficulties in providing mental health education.

CHAPTER THREE: METHODOLOGY AND PROCEDURES

This study explored students' experience and the value they associated with various techniques and services suggested in the literature to be effective in helping students manage the anxiety that often accompanies undergraduate studies. Using a quantitative experimental design, data from student surveys were collected online and analyzed using Excel and the TooFast online assessment software.

Research Design

This was a quantitative experimental design since there was a comparative analysis between numeric ratings assigned to a variety of anxiety management strategies. In the analysis, conclusions were made based on statistical analysis of the results, which is characteristic of quantitative studies (Creswell, 2012). An open-ended question was placed at the end of the questionnaire asking students if they felt that there was some strategy of value not mentioned in the questionnaire and to list it. For example, there may be techniques not listed on the questionnaire, such as romantic relationships, which may be suggested by students as being of value. These strategies listed by students may be insightful directions for future research in this field.

This project was also outcome- versus process-oriented, particularistic versus holistic, and used obtrusive and controlled measurements (vs. naturalistic and uncontrolled observation), which are all characteristics of a quantitative study (Northey & Tepperman, 2007).

Given the stigma attached to mental illness, it was suspected that there would be some difficulty in obtaining data for the study. The general population is reluctant to discuss and answer questions about personal mental health issues compared to other

topics such as job satisfaction, pastimes, and demographics, which limits the ways the data are collected. Due to the above reasons, anonymous questionnaires were selected as an effective method to obtain data.

By getting the student body involved with this issue, there was hope of reducing the isolation associated with anxiety issues. There is a need to increase the social cohesiveness and acceptance of anxiety issues within the student body since many students are affected by them. The results of the study have been made available through an e-magazine for the student body to read, discuss, and reflect upon. Students will hopefully be motivated to explore the results of the questionnaires since it involved their own peers.

The goal for the questionnaire was to have at least 250 students from a minimum of three classroom settings fill it out. It would have been ideal to meet the recommended sample size of 350 for survey studies if possible (Creswell, 2012). The project specifically targeted undergraduate students to limit the confounding differences that one may see with academic anxiety associated with graduate studies in contrast to undergraduate studies. Graduate students, who are typically older than undergraduates and often work outside of school, may have different styles of stress and anxiety management. Additionally, they may be more accustomed to university life and experience less anxiety as a result. Therefore, data collected from graduate students would weaken the results' generalization potential towards undergraduate students.

In the first phase of the project, an online questionnaire was used to explore the value of various coping methods, pulled from a collection of literature, for anxiety management. A copy of this questionnaire can be found in the Appendix. In the second

phase of the project, the findings based on statistical analysis were published into an easy to read and a visually attractive e-magazine. The e-magazine was intended to give students a chance to see how their colleagues manage the anxiety that comes along with higher education. The e-magazine is simply a supplement to the project. It was not created to be a substitute for this document. Techniques employed by educators will also be discussed in the e-magazine. Additionally, they can see which strategies and services that students find the most valuable.

There were a minimal number of ethical borders to cross since the design used a confidential, minimally intrusive questionnaire for data collection. Also, before each cluster of questionnaires was given to the students, the plan was to describe the intentions behind my project to ensure there was no misunderstanding and that it was to promote positive mental health. However, when it came time to data collection, the project intentions were included in a short project invitation given to students via an online learning management system (Sakai) and by faculty email. As a result, there was no need to provide the class with an in-person announcement concerning the project's intentions.

A simplified version of the results has been posted at a student friendly literacy level on a social networking website free for the public to view. The website has some of the discussion relevant to the project as well. Readers have been informed that this document can be viewed online through Brock University's website under the Libraries Digital Repository.

Costs associated to the project were very minimal. They included Tim Hortons' gift cards (three \$10 cards used in a draw as incentive to complete the questionnaire in the project) and \$15 of printing costs for posters.

Upon approval of the project proposal and ethics application (file #12-093-HANDS), all data were collected in the form of questionnaires within a 1-month time span. Within a month after completing data collection, the data were analyzed, a hardcopy of the project was submitted for grading, and the website was posted online to disseminate the results.

The participants were recruited at Brock University where they were redirected to complete the questionnaire online. Data were collected and secured through email and thus required no travelling and minimal time investment.

Participants were not required to travel or be detained for the study. They simply needed to invest approximately 5 to 10 minutes (based on the pilot study and Research Ethics Board recommendations) to complete the questionnaire online and submit it online.

Pilot Study

A small pilot study was completed with six participants. The purpose of the pilot study was to refine the questionnaire and narrow the research objectives within it. Given the small sample size, variability in response was not analyzed. However, the pilot study served to ensure that questions were interpreted equally between the pilot study participants and there was no room for interpretation within the questions. In addition, the pilot study also helped to pick up any poor wording among the questions, discrepancies in the completion time, and ensured that the responses made sense (Creswell, 2012). Participants chosen for the pilot study were selected based on a volunteer basis. As a result, some of the participants may not be representative of the general population since the researcher chose to study those that are willing and available to fill out the questionnaire (Creswell, 2010). The same was true for the study's main sample

population, also selected based on a volunteer basis. No conclusions were drawn based on the pilot study since the sample was not representative of the general population.

Site Selection and Participants

Convenience sampling (through a volunteer basis) was used due to limited funding and resources. As a result, it cannot be confidently stated that the individual participants were representative of representative of the general population (Creswell, 2010). Participants were recruited through online invitations and posters around Brock University (copies are presented in the Appendix). As an incentive, participants were entered in a draw to win one of three \$10 Tim Hortons' gift cards upon submission of their questionnaire. The goal sample size was at least 250 undergraduate students, close to the 350 participant recommendation for this type of project (Creswell, 2010). However, the project was designed to accommodate up to 500 participants. At least 550 participants were invited to participate in the online survey. From the invitations given out, 54 completed the questionnaire and submitted it for analysis.

The project's primary audience is full-time Brock University students who are currently dealing with some degree of anxiety. Given that anxiety disorders affect 18% of the general population aged 18 and over and Brock University has more than 17,000 undergraduate students (Brock University, 2010), it was anticipated that finding at least 250 undergraduates with some level of anxiety should not be difficult (Kessler et al., 1995). Participants varied with age since the attendance of university was the primary qualifying criteria for participation. Participants were from varying years of undergraduate studies and from varying areas of study (arts, sciences, business, etc.).

It is important to note that since participants were only recruited from the Department of Community Health Sciences, the results may not be able to be generalized to undergraduates from other departments. Students from the Faculty of Applied Health Sciences (including majors in Health Sciences, Biomedical Sciences, Kinesiology, and Physical Education) may represent a slightly more health conscious group of students than those from other faculties. As a result, they may be more proactive in seeking strategies and services to manage mental health since many of their courses involve discussing the importance of mental health in a healthy lifestyle. Additionally, 47% of the participants were first-year students and 74% of the participants were female, which further limited the generalization of the results.

The goal number of participants was not reached. The lower than expected sample of 54 completed questionnaires may have been due to a number of factors: (a) compared to many large-scale projects, the incentives to participate (a chance to win \$10 gift cards) were low due to financial constraints; (b) when faced with the topic of mental health, many individuals may have been reluctant to participate due to the stigma and secrecy often attached to it; (c) the target population was very specific (i.e., Brock university undergraduates experiencing some degree of academic related anxiety and willing to share how they deal with it); and (d) obtaining student information (i.e., student email addresses) to effectively invite students to participate in the questionnaire proved to be very difficult in a higher education setting due to multiple privacy concerns for students. Finally, the obtainment of student information from university faculty who did not personally know the researcher proved to be difficult.

However, this does not imply that data from 54 undergraduate students were not

relevant or generalizable to any extent. After calculating the average participant value associated with each strategy or technique, there were quite a number of differences amongst them. A study with more participants, providing more incentive, and a more detailed questionnaire may yield more accurate and generalizable data.

Instrumentation

Since the results of this study were not generalized outside of the university, the instrument was designed without using a standardized anxiety-related scale as a template. The questions were designed to address the specific research questions stated in the project. (The revised questionnaire can be found in the Appendix.) The questionnaire consisted of 20 questions—six collecting demographic information and 14 requesting students to assign values associated with various techniques and strategies used for academic related anxiety management. Students were asked to assign a value between 0 (no value) and 3 (substantial value) for each technique or strategy listed. The assigned value section consisted of four questions concerning institutional services, six concerning educator strategies, and four concerning student-based strategies. Once they completed the value ratings, students were given the opportunity to contribute their own strategies not listed on the questionnaire in an open-ended question. These student-suggested strategies were not used in the statistical analysis.

Data Collection and Recording

Due to the specificity of the research questions, the researcher developed his own instrument for the project. The questionnaire was distributed through posters around the university and handouts given to a random selection of undergraduate lecture halls. The posters and handouts redirected students to the actual questionnaire found online.

Completed questionnaires were submitted with an email to be entered in the draw upon the study's completion. Reliability of the questionnaire was difficult to measure in the pilot study since, despite the fact that the project was interested in common trends in the full study population, individuals use strategies that are most valuable for them personally. In other words, the likelihood of seeing trends in a sample population of six participants was low considering the nature of the questionnaire.

Data Processing and Analysis

A median student-rated score was calculated for each strategy listed on the questionnaire to determine which strategies appear to be most valuable to undergraduate students. Descriptive statistics were calculated on an Excel spreadsheet containing the results from all the questionnaire responses. Additionally, considering the exposure of Excel and spreadsheet-style analysis given in higher education, it would likely be easier for the data to be reviewed by others interested in using or reviewing it (Warner & Meehan, 2001).

Restatement of Area of Study

This is a study exploring students' experience and the value they place on various techniques and services suggested in the literature to be effective in helping students manage the anxiety that often accompanies undergraduate studies. Using the quantitative design discussed, an average student value was assigned to each of the techniques reviewed.

CHAPTER FOUR: PRESENTATION OF RESULTS

The purpose of my project was to explore which strategies and techniques for dealing with anxiety are considered the most valuable by students at Brock University. The primary interest was exploring which strategies appeared to be most utilized and judged most valuable, on average, by students at Brock University.

Using online survey collection software, data were collected from 54 undergraduate students currently attending Brock University. Of these, 53 were included into the data analysis since one questionnaire was submitted without agreeing to the consent information. The findings presented in this chapter are derived from the analysis of the data. In the analysis, conclusions were made based on statistical analysis of the results, which is characteristic of quantitative studies (Creswell, 2010).

The individual techniques and/or strategies and their corresponding student ratings are shown in Table 1. It was found that early posting of academic material online (by educators), physical activity, when educators break up major academic projects into smaller portions, and socialization were the strategies and/or services that undergraduate students found to be most valuable in the management of their academic-related anxiety.

It is important to note that the differences in mean student value between many of the strategies and techniques were very small. To gain a perspective on these minute differences, Figure 1 presents the average student values associated with each strategy and technique in a bar graph fashion. As an example, one can see that the value difference between the element in second and sixth place is very small with respect to the other differences. With respect to the research questions previously discussed, the results provide some clear answers and new knowledge to add to the field.

Table 1

Student Ratings of Techniques and Strategies for Academic-Related Anxiety Management

Strategies /techniques	Mean value rating of anxiety reduction*	Assigned rank (using mean values)
Institutional Services		
Counseling services	1.35	12
Academic advising	1.93	10
Support/social groups	1.97	9
Disability services	1.14	14
Educator Strategies		
Hands-on activities	2.00	8
Learning preference adaptations	2.16	7
Breaking up work into smaller portions	2.42	3
Building on students' strengths	2.40	5
Project/topic flexibility	2.33	6
Early posting of work online	2.67	1
Student Strategies		
Socializing	2.40	4
Physical activity	2.46	2
Prescribed Medication	1.25	13
Personal hobbies (e.g., music, games, Internet)	1.92	11

*(0 = none; 1 = minor; 2 = moderate; 3 = substantial)

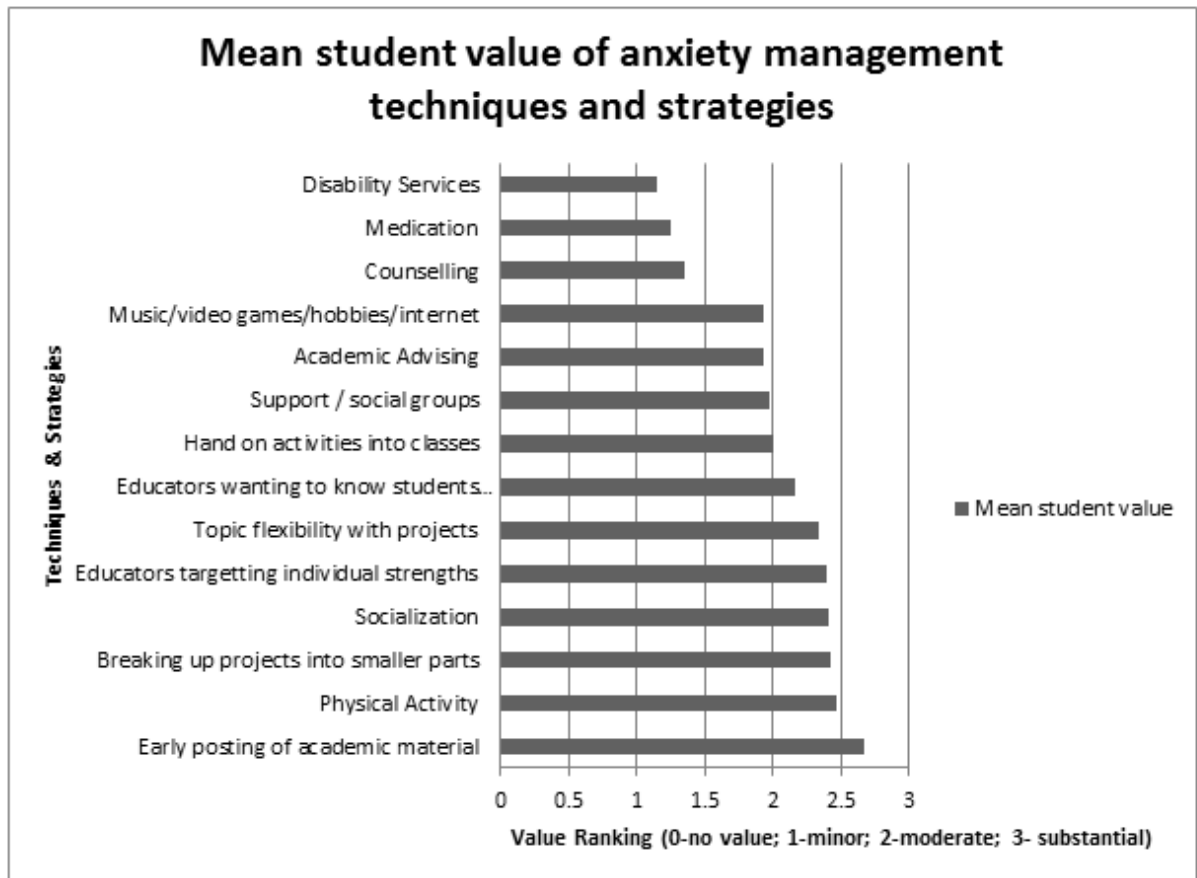


Figure 1. Ranking of average student value associated with each technique and strategy on the questionnaire.

Student Strategies

Students were able to identify and assign various values associated with different anxiety management techniques, services, and strategies based on their personal experience. The mean values associated with individual techniques and strategies ranged from 1.14 to 2.67 on a 0.00-3.00 scale (see Figure 1). Based on the mean assigned values, students placed moderate to substantial value on the strategies and techniques that required little external assistance (e.g., physical activity, socialization, personal hobbies, and media use). In other words, students actively took responsibility for their well-being and used autonomous strategies and techniques to manage their academic-related anxiety. However, many students also placed the same amount or greater value on efforts put forth by their educators to help ease the anxiety and pressure that can accompany higher education.

Role of the Educator

The mean student values assigned to all six educator controlled strategies were between 2.000-2.673/3.000, considerably higher than the other two categories. In other words, on average, students moderately to substantially value the efforts put forth by educators to help them manage some of the anxiety that accompanies higher education. With some of the highest mean values amongst all three categories of academic related anxiety management strategies, it is clear that efforts put forth by educators do not go unnoticed. It appears that educators can help lessen the burden experienced by students by being highly organized, using various teaching styles, and treating their students with individuality. Finally, although institutional services may bolster lower mean values amongst the various categories, they are by no means inferior or disposable in the arsenal of anxiety management strategies and services in higher education.

Use of Institutional Services

Services including DisAbility services, professional counseling, academic advising, and support groups received some of the lowest mean value ratings. However, since these specific services cater to individual and often specific issues, their importance may not be recognized through their mean values. For instance, without DisAbility services, students with psychological disorders such as Social Anxiety Disorder may not be able to complete their undergraduate work due to attendance and/or group-work conflicts. Regardless, they are used by a number of undergraduate students at Brock.

Frequency Account

Frequency of use is the last factor to consider when claiming how useful a strategy or service is or could be. Although not the primary focus of the project, the frequency of use or experience was also collected as part of the data collection process. The resulting values are shown in Table 2. It was found that at least 90% of the students surveyed had a previous experience with socialization, physical activity, personal hobbies, and most of the educator techniques (posting material online early in the term, breaking up projects into smaller portions, project and topic flexibility, and targeting individual student strengths). The techniques and strategies least experienced were disability services, professional counseling, and physician-prescribed medication.

Of note, three of the top four services and strategies in both assigned value and usage frequency were the same. In other words, services and strategies most highly valued by students are also similar to those most often used. This is affirming since it tells us that students are effectively accessing and using the strategies and services that they consider the most valuable to academic-related anxiety management.

Table 2

Usage Frequency of Techniques and Strategies for Anxiety Management

Strategies /technique	Frequency of students with experience	Percentage of students with experience	Assigned percentage frequency rank
Institutional Services			
Counseling services	23	43%	13
Academic Advising	40	77%	10
Support/social groups	32	60%	11
Disability services	14	26%	14
Educator Techniques			
Hands-on activities	46	87%	8
Learning preference adaptations	45	85%	9
Breaking up work into smaller portions	50	94%	5
Building on students' strengths	48	91%	7
Project/topic flexibility	48	92%	6
Early posting of work online	52	98%	2 (tie)
Student Strategies			
Socializing	52	100%	1
Physical activity	52	98%	2 (tie)
Prescribed Medication	24	45%	12
Personal hobbies (e.g., music, games, Internet)	52	98%	2 (tie)

CHAPTER FIVE: SUMMARY, DISCUSSION, AND IMPLICATIONS

It is well established that students in higher education are dealing with many stressors (Collins & Mowbray, 2006; Kadison & DiGeronimo, 2005; Mowbray et al., 2006; Stevenson, 2010). Given the existing literature corresponding to the value and effectiveness of techniques, services, and strategies used to help students manage academic-related anxiety, there had been a need for some kind of ranking system to assess their comparative student value. It has been established based on various randomized trials that isolated techniques (e.g., counseling, physical activity, and organizational strategies) can be effective in helping students manage anxiety (Meyer & Quenzer, 2005; Nilsson, 2008; Rath & Royer, 2002; Travis, 2011). However, there is a paucity of academic literature comparing arrays of techniques and strategies in terms of clinical effectiveness or perceived student value. This project has attempted to address this gap by collecting comparative data concerning student value associated with isolated techniques and strategies (academic advising, prescribed medication, socialization, etc.) and making claims that have not existed before. Although the data are not from standardized anxiety and/or stress scales, they demonstrate the value students placed on each strategy listed in the survey. By letting students voice what they find the most valuable based on their previous experiences, some valuable information has been attained. After all, many of these services and built and put in place *for the students*, so why should anyone else decide what works the best for them?

The purpose of the project was to explore which strategies and techniques for dealing with anxiety were considered the most valuable by students at Brock University.

The researcher's primary interest was in exploring which strategies and services appear to be most utilized and judged most valuable, on average, by students at Brock University.

To accomplish this, at least 540 undergraduate students from Brock University from a variety of undergraduate courses (mostly taught by instructors who know the researcher of this project) were invited to participate in an online survey through convenience volunteer sampling. Instructors posted an announcement on Sakai with an invitation attached for their students to participate in the online questionnaire. The survey involved students rating their experience with techniques and services suggested in the literature to be effective in helping students manage anxiety. Among the invitations, 53 completed questionnaires were submitted and utilized in the data analysis.

Students assigned the highest value to educators who post academic material online early; physical activity; educators who break larger assignments into smaller portions; and socialization. Other strategies followed very closely behind in terms of student value. Based on the mean student value ratings, the least valuable to students were disability services, professional counseling, and physician-prescribed medication. It is possible that since educators are heavily involved in higher education in terms of the amount of time spent with students, their efforts are most valued in helping reduce students' academic-related anxiety. Institutional services may have had lower mean assigned values due to their specificity towards more severe cases of anxiety. Student strategies, like the educator techniques, were very positively valued. This may be due to their ease of access and the fact that they often do not require disclosure of personal concerns to others.

Discussion

Sufficient data were collected to adequately answer all of the research questions posed in this study. However, in doing so, many new questions arose that may be used in further research. For example, it was found that students are able to identify the degree to which they value various techniques and strategies used for anxiety management. However, since the participants were recruited by a volunteer basis, which may attract students more proactive towards the field of anxiety management, it is unknown whether they are representative of the average undergraduate student dealing with anxiety.

Student Strategies

Many students chose to take responsibility for their academic anxiety management. This was seen in the mostly moderate to substantial values assigned to the student strategies listed on the questionnaire. Many student strategies (e.g., physical activity and personal hobbies) offer the unique advantage of not requiring the assistance or time of others (Daitch, 2011). Additionally, most of them can be done almost anywhere and at any time without the requirement for meetings, appointments, or classes. However, for students who are openly accepting to help from others, educators can play a major role.

Role of the Educator

Based on results from the project, students appear to place tremendous value on the efforts of educators in helping them deal with anxiety that can accompany higher education, especially for posting academic content online well ahead of classes. Considering the positive response that students have towards this particular teaching strategy, it may be of interest to university personnel to invest in training for these

technological concepts for professors who are not comfortable with the use of technology (e.g., using Sakai, converting notes into pdf format, using PowerPoint presentations).

Additionally, since educators expect students to submit their academic material in a prompt fashion at a given deadline to allow sufficient time for evaluation and grading, it may be possible that students would simply like the same respectful behaviour from their educators. Having material posted early in the term may allow students to get well organized and mentally prepare for and/or review the material well ahead of being immersed into the hectic schedule of a typical undergraduate semester. If students are able to make such pre-emptive preparations, it seems likely (based on the values assigned to this element) that they will be less likely to experience academic-related anxiety during the semester's most busy periods.

Use of Institutional Services

Lastly, there are services offered by the university to students who are willing to reach out and use them. Among the three categories of strategies and techniques, institutional services scored, on average, the lowest. This may be because these services can involve personal disclosure with someone students often do not know, time investments and appointment bookings, and sometimes financial investment (Burgess, 2009; Kadison & DiGeronimo, 2005). The lower average assigned values may simply be due to the fact that students experiencing academic related anxiety may be more likely to seek assistance from friends, family, and personally enjoyed activities since they are often easily available and accessible to students at most times of the day (Daitch, 2011).

The average values were still surprising considering these services often require highly trained personnel and often require appointment bookings and financial investments for students to receive treatment. However, it may be that many of these

services (e.g., counseling, physician appointments, support groups) are most appropriate for severe cases of anxiety rather than the academic-related anxiety that the average student experiences. Additionally, due to wording within the questionnaire, it may be possible that students selected “1- minor value to dealing with academic related anxiety” simply because they have never used the service, rather than the more suitable answer, “I have never used this service” located at the end of the list of options (see questionnaire in Appendix for examples). By selecting the first example, their rating would be included in the mean rating calculation, likely effecting the rating negatively. Future questionnaires may attain more accurate responses may modifying the wording such as: “1- *I have used this service but* it was of minor value to dealing with academic related anxiety.”

Finally, to use these types of services, a student often needs a medical diagnosis to be qualified for treatment. This can often take a long time in which students may be actively seeking other forms of anxiety management that are more easily and readily available, such as social groups and physical activity.

Despite these services being assigned to the lowest value, there are many documented cases of individuals experiencing anxiety that have been effectively managed through the use of counseling, medication, and disability services (Daitch, 2011; Meyer & Quenzer, 2005). This study has no intention of suggesting that these services are not useful to experiencing academic related anxiety. It may simply be that these services are most appropriate for the more severe cases of student anxiety, hence the highly trained personnel often involved (i.e., academic advisors, doctors, and counselors).

Funding Concerns

On another note, it was interesting to see that more funding does not equate to more valued strategies and services. The most valued strategies and/or techniques require minimal funding to operate. For example, physical activity can be done almost anywhere, not simply in high end training facilities (e.g., The Zone at Brock University). Socializing with friends, family, and colleagues can also easily be done by students with minimal preparation and/or effort. In most cases, it is encouraged in higher education as well, through group work and presentations.

Requesting that educators post academic materials online as early in the term as possible may however require additional funding. The same is true for many of the other educator strategies. If external funding is available, Fedock, Zambo, and Cobern (1996) found that collaborative efforts between university and secondary school educators, who may learn more about teaching pedagogy, were able to give the university educators skills and feedback regarding curriculum modification resulting in higher levels of student satisfaction. Alternatively, in the absence of funding, university educators might develop through something like an online Faculty Learning Community (FLC; Sherer, Shea, & Kristensen, 2003). An online FLC would allow educators to freely share stories regarding good experiences with teaching modifications, new exciting literature, or new teaching software with each other online. As a last resort, if university educators were not interested in developing such a group, the findings from the project that are relevant to university educators could be summarized in a short text and, by request of faculty deans, could be emailed or dropped in faculty mail boxes. A short read with a title like “Using Technology to Help Minimize Anxiety Experienced by Undergraduate Students” might grab the attention of at least a few faculty members.

Student Suggested Strategies

The two most frequently listed suggestions made by students as additional techniques and strategies that could be used for anxiety management were sleep and meditation. These may not have been specifically encountered in the literature due to their controversy concerning recommendation; that is, although sleep may be involved in a healthy mental health balance, more does not always mean better (Meyer & Quenzer, 2005). Alternatively, they could have been included within other categories; that is, meditation could be considered a hobby or personal activity (Daitch, 2011). As a result, it is likely that the major groups of strategies and services used in academic related anxiety management were covered adequately in the questionnaire.

Implications for Practice

Given that physical activity, the early posting of academic material online, breaking up projects into smaller portions, and socialization were found to be the most valuable tools to students for academic-related anxiety management, it may be of interest to ensure these strategies and/or services are maximally utilized in the higher education setting. It was pleasant to discover that the top four most valued techniques and strategies based on student ratings were all promoted at Brock University.

Physical activity and socialization are encouraged and promoted through the numerous fitness opportunities (e.g., gym bookings for groups and personal training) and fitness classes (e.g., group spin classes, yoga, and intramural sports) throughout Brock University. Additionally, there are yearly health fairs and health related conferences that cover the importance of physical activity and socialization.

To promote socialization, Brock University does a considerable job by advertising various school events (including sports, music, & entertainment) around the campus and on the website headlines. Additionally, there are multiple pages devoted to social committees, hobby-related clubs, and social groups. Brock also advertises theme nights and social gatherings through the campus's bar/lounge (Isaac's Bar & Grill), often resulting in large turnouts. The list by no means ends there, with student mentoring, volunteering, and much more.

It was exciting to see how Brock University students rated the educator techniques. Surprisingly, the most valuable thing that educators can do to help students manage academic-related anxiety is having course material posted online early on in the term, rather than staggered throughout the term or shortly before corresponding lectures. It may be that the use of technology acts as the best way to communicate to a technologically savvy generation. Alternatively, it may just be that it allows students to prepare everything for the course well before it gets started and the assignments and exams begin to accumulate. As far as encouraging educators to post academic material online, Brock University uses the Sakai Learning Management System, which provides educators with a hosting website tab for their respective course, in which they can add material online for their students to download from home or school. To promote some of the teaching strategies highly valued by students experiencing anxiety, Brock faculty could work together to build an online community, as previously suggested, to discuss and share educational experience and pedagogy (Sherer et al., 2003). To ensure that students get a chance to voice such concerns and values, it may be of interest to have a

section or sub-forum allowing students to post questions towards non-specific educators regarding their teaching styles and practises.

The results of this project are likely most appropriate for students who have some degree of academic-related anxiety to the point where it has some level of negative impact on their academic work. Additionally, it may be useful for undergraduate educators by letting them know which teaching strategies that students value most so they can be sure to emphasize them in their practice. Finally, some suggestions have been made on how valued institutional services can be promoted within the university.

Implications for Research

Besides implications for practice, this project has also brought new implications for research as well. This project has served to support existing theories in the literature. For example, the students' positive value rating associated with the use of learning styles reinforces the theory of multiple intelligences and learning styles (Gardner, 1993). The same is true for the Flow theory by Csikszentmihalyi (1997), which suggests that students are less likely to experience anxiety when working in areas where they feel both challenged and competent.

The results of this study may help initiate direction for future studies. For example, it may be of interest to explore how exactly posting academic content online substantially helps students deal with academic-related anxiety. Taking a more qualitative approach to explore similarities between the three most highly valued strategies and services may reveal some new information. In other words, detailed student interviews may reveal how exactly the early posting helps students so much. A possible hypothesis, as already suggested, might be that it allows them more time to print their notes, read

them before class, compare them to the textbook, or prepared class questions when they have free time before the corresponding lecture. Alternatively, one may explore the specific sources of academic-related anxiety in higher education to see if any of the strategies and services explored in this study connects to the stressors in some way. For example, if the top stressor for academic-related anxiety occurs when professors post lectures online shortly before lectures, which does not allow time for students to read them and take some preliminary notes, it would make sense that early posting is the biggest relief from academic related anxiety for students. To further research this topic, it may be of interest to investigate the comparative effects of some of the strategies and techniques from the survey using standardized anxiety and stress scales. This would be more financially and time intensive to explore, considering their size and more complex analysis (Meyer & Quenzer, 2005). However, a study using standardized scales and more controlled variables would enhance the generalizability of the findings, since it could be more closely compared to existing literature. Finally, existing standardized scales for depression and anxiety are tested to ensure good validity and reliability, unlike the scale used in this study (Brown, Chorpita, Korotitscw, & Barlow, 1997).

As already mentioned, it could be of interest to explore the qualitative side in interpreting the results of this study, exploring how each individual strategy or service acts to reduce anxiety in students. New trends (e.g., a relationship between emotional involvement and value associated with each strategy) may be uncovered through such exploration. Finally, it may be enlightening to explore the flip side of the issue, for how specific stressors cause academic-related anxiety in higher education students. For example, amongst possible stressors (e.g., pressure to do well, anxiety concerning career

attainment, lack of interest, and deadlines), it would be interesting to explore which cause the most academic related anxiety for students. If this kind of research was done, we would also get an idea of what causes the most anxiety in the first place, on top of how students deal with it. Such information might allow students and educators to be more proactive in the struggle against academic related anxiety for students. For example, if worry about career attainment was found to be the greatest stressor, universities might want to put heightened importance around career fairs and employment services.

Finally, there may be some strategies that students use and find valuable in anxiety management that were not present in the survey due to legal or ethical reasons. These may include illegal drug use, romantic relationships, and sexual activity. Further research done by a more experienced researcher may be done to explore the value of such strategies. Additionally, further studies are recommended to use more specific terminology on any questionnaire listing various strategies and services. Due to concerns about questionnaire length and participant compliance, many strategies were grouped into broad terms. For example, one question was allocated for physical activity in general. However, there may be significantly different values associated with various types of physical activity, such as yoga, aerobic activity, and resistance training.

Considering the small sample size attained for this study, it would be valuable to do further research with a larger sample. This sample size attained did not meet the recommended minimum size for a survey based study, limiting the generalizability of the findings (Creswell, 2012). More participants may be recruited by a guaranteed compensation for study completion, expanding the invitations to multiple university

campuses or by expanding the target population to include alumni who had gone through a similar experience.

Implications for Policy

Additionally, this project has brought up some concerns for policy regarding mental health management. A lot of funding can be required for services such as academic advising, counseling, physician services, and educator workshops, due to the highly educated and trained staff involved. As a result, it would be of interest to health officials to know that students place high value on these services for dealing with the anxiety that can be encountered in higher education. In other words, with limited funding allocated to mental health, it would be beneficial to know that expensive services are in fact having a positive effect on the students who use them. However, more literature review and data collection would be required to accurately measure the relationship between the exact funding allocated for the services listed compared to their student value. Nonetheless, mean student values for the above services were all positive, ranging from mild to substantial value.

However, it was found that strategies such as physical education and socialization, which require less external funding to maintain than those discussed above, received a much greater value for anxiety management than those which often receive greater fund allocations. This may bring to debate whether funding in higher education for mental health is allocated in the most effective places.

Research Blog

Finally, as planned in the project's early steps, an informal summary of the preceding discussion and results were intertwined into a media laced blog (or e-

magazine) through the blogging website www.tumblr.com. The e-magazine, or project blog, found at academicanxiety.tumblr.com (*password: brock*) provides a very informal discussion of the study's results. Considering that it can be difficult for students to dive into journals containing complex language and a lack of media (pictures, social networking, etc.), this blog was created to act as a more student-friendly way of sharing the results of the project. Additionally, due to the stigma attached to mental health, students may find it much easier to browse a media-laced informal discussion of a project's results placed on a social networking website that is very popular among the younger generation, rather than seeking out a research document (Murphy, 2008). Additionally, by using tumblr.com as a platform to create an e-magazine, students can also flag content on the blog that they like in particular, highlighting areas that may be of interest or surprise to other students.

For students seeking a more thorough discussion and literature review regarding the project, the website redirects them to location of this entire document in the IRC at Brock University. However, the entire purpose of this e-magazine, or project blog, was simply to reach students more easily.

Final Word

To the field of mental health management in higher education, this project offers a considerable contribution of new knowledge. Educators, besides their major duty of teaching students academic material, play an important role in helping students deal with the stress and anxiety that can accompany studies in higher education. No one single strategy or technique was valued substantially more than all others, and all of the strategies and services were at least valued to a minor degree to the participants as a

whole. This suggests students use a combination of strategies and techniques to address anxiety issues experienced during university.

As anxiety issues continue to be prevalent in higher education, it is important to proactively help students deal with them. Regardless of the cause of anxiety, such as the pressure to get a good GPA or the rising tuition rates over the last decade, most students are bound to experience some level of distress during their undergraduate years (Mowbray et al., 2006). Helping undergraduates find either more valuable or diverse ways of dealing with their anxiety, and offering suggestions to educators that have the potential to ease student anxiety levels make this project worthwhile.

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Appendix

Questionnaire, Recruitment Materials, and Ethics Information

STUDENT SURVEY

Password: brock9

Pilot Study data collection – September 20-25 / 2012

Questionnaire refinement time - September - December

Data collection period– January 5-25 / 2013

Survey: MRP

Question 1

I have read the informed consent at mentalhealth9.tumblr.com and agree to the research procedures. Once you have agreed, please continue with the questionnaire.

☐ Yes, I agree to the terms described.

Question 2

What is your current degree in-progress?

- ☐ B.A.
- ☐ B.Sc.
- ☐ B.B.A.
- ☐ other

Question 3

What is your current year of study?

- ☐ 1st
- ☐ 2nd
- ☐ 3rd
- ☐ 4th
- ☐ other

Question 4

What is your identified gender?

- ☐ Female
- ☐ Male
- ☐ other

Question 5

What is your current age?

- ☐ <20
- ☐ 20-25
- ☐ 25-30
- ☐ >30

Question 6

How would you rate your anxiety levels during the last academic year?

Selected rating: 5

LowHigh

– SCALE BAR HERE

Question 7

Over the last year, how debilitating was your anxiety on your academic performance?

Selected rating: 5

Not at allExtremely

– SCALE BAR HERE

The following questions list a variety of services available to Brock students that are related to mental health or anxiety management.

Please rate how you value each service in terms of anxiety management, based on your experience with them.

Question 8

Counselling services

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ I have never used this service

Question 9

Academic Advising

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ I have never used this service

Question 10

Support or social groups/clubs

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ I have never used this service

Question 11

Student DisAbility Services

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ I have never used this service

The following items are suggested in the literature as ways in which educators can help students dealing with anxiety.

Please rate how you value each service in terms of anxiety management, based on your experience with them.

Question 12

Incorporating hands-on activities into the lectures

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ My previous educators have never tried this technique

Question 13

Desiring to get to know students and their individual learning preferences

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ My previous educators have never tried this technique

Question 14

Breaking up assignments / projects into smaller portions (e.g., rather than 1 large piece of work due at the end of the semester)

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ My previous educators have never tried this technique

Question 15

Challenging you in areas where you feel academically strong

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ My previous educators have never tried this technique

Question 16

Providing assignments / projects with flexibility (e.g., students choose their topic or way of completing the project)

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ My previous educators have never tried this technique

Question 17

Having lectures and course material posted online well in advance to class

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ My previous educators have never tried this technique

The following items are suggested in the literature as ways in which students can help themselves deal with anxiety.
Please rate how you value each activity in terms of anxiety management, based on your experience with them.

Question 18

Socializing with others

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ I have never tried this activity

Question 19

Participating in physical activity (e.g., sports, garden work, yoga, etc.)

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ I have never tried this activity

Question 20

Using physician prescribed medication

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ I have never tried this activity

Question 21

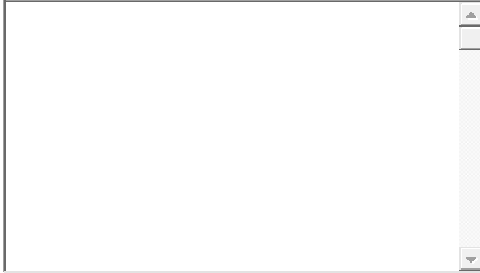
Listening to music, playing video games, or browsing the internet?

- ☐ 0 – No value
- ☐ 1 – Minor value
- ☐ 2 – Moderate value
- ☐ 3 – Substantial value
- ☐ I have never tried this activity

Question 22

[OPTIONAL] If you would like to be entered into a draw for 1 of 3 Tim Horton's gift cards please leave me your email! You will not be contacted by email unless you are selected as a winner!

Thanks for your time!!



Question 23

[OPTIONAL] If you utilize strategies/techniques/services other than those listed above, please share them along with your assigned value associated with them (e.g., massage therapy – RATING:2). Please remember, all answers provided will not be linked to any individual participant and your confidentiality will be secured.



Thank you for your time! Please remember that professional counselling, academic advising, support groups, social groups, and student disability services are freely available to all Brock University student! :)

If you agree to the consent information provided at mentalhealth9.tumblr.com and wish to submit your results to be included in the study, please click the `SUBMIT` button below.

December 1,
2012

EMAIL RECRUITMENT TOOL

Hey Brock University students! The purpose of my project is to explore what kinds of strategies and services students value the most when it comes to academic-related anxiety management. Should you choose to participate, you will be asked to complete a short and simple questionnaire, developed by myself, at the website below. Based on my pilot study, it should take between 5-10 minutes to complete. If you complete the survey and leave me your email address, you will be entered in a draw to win some Tim Horton's gift cards! However, this is completely optional.

STEPS

- (1) Copy and paste the URL (www.mentalhealth9.tumblr.com) into your browser
- (2) Read the informed consent found at this site and follow the subsequent instructions.

Title of Study: Exploring the Value of Academic Related Anxiety Management Strategies Used by Students in Higher Education

If you have any pertinent questions about your rights as a research participant, please contact the Brock University Research Ethics Officer (905 688-5550 ext 3035, reb@brocku.ca). If you have any questions, please feel free to contact me (see below for contact information).

Thank you,
Kenneth Curtis, B.Sc.

Principal Investigator (PI): Kenneth Curtis, B.Sc.
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Faculty Supervisor: Catherine Hands, PhD
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(905) 688-5550 Ext. 5122
chands@brocku.ca

This study has been reviewed and received ethics clearance through Brock University's Research Ethics Board. (FILE# 12-093-HANDS)

EMAIL RECRUITMENT TOOL

Hey Brock University students! The purpose of my project is to explore what kinds of strategies and services students value the most when it comes to academic-related anxiety management. Should you choose to participate, you will be asked to complete a short and simple questionnaire, developed by myself, at the website below. Based on my pilot study, it should take between 5-10 minutes to complete. If you complete the survey and leave me your email address, you will be entered in a draw to win one of three Tim Horton's gift cards! However, this is completely optional.

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47 3 9

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Free educational resources for parapsychology, psychical research & mind magic.

To select random winners in prize draws, choose Unique Values
For random lottery numbers (typically 6 integers between 1 and 49) choose Unique Values
For values >9999999 generate 8 or more (0-9, Open Sequence). Output is one number.
Open Sequence - each integer can appear any number of times
Closed Sequence - each integer appears an equal number of times
Unique Values - each integer appears once only

Disclaimer: While every effort has been taken to ensure the error-free operation of this random number generator, no warranty of its accuracy or suitability for any purpose is made or implied, and no liability will be accepted for any inconvenience, loss or damage caused directly or indirectly from its use.

Subsequent winners in descending order or submitted emails; #3,9, & 47.

TRACKING INCOMING PARTICIPANT DATA

